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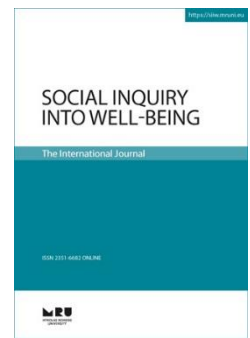
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Learning and ageing well at knowledge-intensive work. A qualitative research synthesis on senior knowledge workers' learning experiences

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Abstract

The purpose of this research synthesis is to map common themes related to learning of workers aged 50+ in knowledge-intensive professions. The research questions focus on identifying (1) the typical features of learning for senior knowledge workers and (2) what kind of organisational conditions encourage senior knowledge workers to continue learning and contributing to their work community. The techniques of qualitative research synthesis are applied in order to make sense of themes and concepts that have recurred across individual qualitative studies conducted by the group of graduate students at University of Helsinki, Finland, between 2012 and 2015. The findings indicate that self-regulation, continuity, sharing and networking are typical for learning at age 50+. The organisational conditions that enable and support such learning during the late professional career include three main things: senior knowledge workers are involved in and can influence organisational changes; they are actively participating in multi-aged collaboration and they enjoy appreciation of the organisational management.

Keywords: learning; knowledge work, senior worker; old worker; older employees; ageing

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Introduction

The proportion of people aged 60 years and over is growing faster than any other age group. Between 2000 and 2050, the proportion of the world's population 60 years and over will double from about 11% to 22% and the absolute number of people aged 60 years and over is expected to increase from 605 million to 2 billion over the same period (World health organization [WHO], 2013). Over the next 50

years, there will be significant changes in the age structure of the major industrialised countries. In the European Union (EU), experts predict that the 16–64 age group will decrease by 20 million people between 2005 and 2030, while the 55–64 age group will increase by 14 million people (Eurostat, 2012b). The trend is very dramatic in small EU countries. Among EU countries, Finland has the largest share of those aged 50 to 64, amounting to 14.7% of the total population (Eurostat, 2012a).

These demographic changes may have significant fiscal and economic consequences and thus pose important public policy challenges for the countries involved. As both the number of older people and the life expectancy increase, future generations will need to work longer and retire later than the workforce today. Keeping people employed is crucial to extending working lives because it is much more difficult for senior workers who become unemployed, for whatever reason, to get back into the labour market (Loretto, Vickerstaff, & White, 2006). The share of people aged 50 to 64 in Finland who are active in the labour market is among the highest in the EU (Eurostat, 2012a).

Governments in many countries have strongly enforced the policies of lifelong learning that expand the idea of the active learning age far beyond childhood and youth. Moreover, since the 1990s, policies of active ageing have called for more attention to education in mid and later life. Lifelong learning can assist active ageing by prolonging working careers and helping in transitions to retirement and old age (Davey, 2002). Lifelong learning opportunities are highly valued by the Finnish adult population. In 2010, about 23% of adults aged 25 to 64 were taking part in education and training (Eurostat, 2012b). A major part of learning consists of informal learning at work or training provided by employers. The opportunity to have new challenges and training are key factors that explain why Finnish employees want to stay in working life at least until their official retirement time.

Ageing research on well-being at work has mainly focused on preventing/combating age-related disease and disability, allowing workers to prolong their career and enjoy longer, healthier lives. Much less research has focused on senior workers' own activities related to their well-being, especially on how learning contributes to ageing well at work. Moreover, in learning research there is no comprehensive reviews on knowledge concerning learning of senior professionals who are actively involved at knowledge-intensive work.

This qualitative research synthesis will focus on the role learning plays for senior workers in knowledge-intensive professions. Senior knowledge workers are here defined as employees or self-employed people, aged 50 years or more, who face high cognitive demands and requests to manage complex information processes at work. They typically have a higher education degree, and professional or managerial jobs. At work, they need to interact socially and participate in collaborative knowledge creation and information-sharing processes. Moreover, they face a variety of contradictions. Nowadays, work demands are increasing both cognitively and socially. Technological, operational and organisational changes are recurrent. At the same time, pervasive age-related stereotypes exist that approach ageing in terms of physical and cognitive decline (Anderson, Parbery-Clark & White-Schwoch, 2012; Commodari & Guarnera, 2008; Wang et al., 2011). Senior knowledge workers may receive contradictory messages if they are at the same time challenged to learn new skills and viewed as not capable of managing those tasks.

The purpose of this research synthesis is to locate key themes in prior studies in order to deepen the understanding of how learning occurs during late professional career. The

research questions are based on the theoretical frame that postulates that learning is an active cognitive and meta-cognitive process as well as a social process. Moreover, the purpose is to investigate how the organisation can facilitate senior knowledge workers' involvement with learning. The specific research questions are as follows:

What are the typical features of learning for senior knowledge workers? This research question seeks to identify how knowledge workers aged 50+ describe their own learning experiences, including meta-level strategies in steering and directing their own learning.

In which conditions do senior knowledge workers continue learning and contributing to their work organisation until late career? This research question seeks to understand how work organisations can support and encourage employees aged 50+ to continue their learning and active involvement at work.

Stereotypes about Senior Workers' Learning Potential

In working life, there are many assumptions about the potential of employees over the age of 50. Many people assume that the natural ageing process in the human brain results in the limited intellectual capacity of senior workers. They are often considered inflexible and uncreative, and thus less capable of doing their jobs than their younger counterparts (Coy, 2005). According to a 'poor performance' stereotype, senior workers' work performance is expected to decrease due to lower ability and motivation (Posthuma & Campion, 2009). It is also common to assume that senior workers experience greater fatigue and cannot bring the necessary levels of energy to work to keep up with younger workers (Stark, 2009). Moreover, 'lower ability to learn' and 'resistance to change' stereotypes define senior workers as less adaptable and flexible, and therefore more difficult to train; they are viewed as having less potential for and enthusiasm about learning and development (Posthuma & Campion, 2009; Stark, 2009). Senior workers are also expected to be less knowledgeable than younger workers regarding the technical aspects of their jobs (Stark, 2009). Furthermore, it is often assumed that older employees are less motivated to work, take more sick leave and generally cost more ('Turning boomers into boomerangs', 2006).

According to Roscigno et al. (2007), age discrimination has received a lot of attention over the past two decades from various cross-cutting social science disciplines. Research findings have revealed the pervasiveness of ageist stereotypes and suggest trends towards downward occupational mobility for ageing workers, especially in the face of economic restructuring and global economic pressures (Roscigno et al., 2007). Skilled and semi-skilled workers, particularly those nearing 50 years old and retirement, are in a vulnerable position in the labour market (Roscigno et al., 2007). Ageist representations can affect institutional policies and practices and lead to age-based discrimination that impacts the recruitment, promotion and retention of an ageing workforce (Posthuma & Campion, 2009; Stark, 2009). Moreover, the pervasive age stereotypes can threaten the self-perception, identity and agency of ageing workers. Being subjected to negative age stereotypes regarding older adults' competence is said to undermine

senior workers' performance (Lamont, Swift, & Abrams, 2015).

There is more and more evidence that shows that these negative assumptions are false (Inma & Drury, 2007; Kaye & Cohen, 2008; Koopman-Boyden & MacDonald, Posthuma & Campion, 2009; 2003; Slagter, 2007; 'Turning boomers into boomerangs', 2006). None of the stereotypes actually represent senior workers as a group or the fact that there are wide individual differences (Posthuma & Campion, 2009). Social sciences research has indicated that a longer working life and new paths to retirement are certainly possible if the pension systems, health care and work-life balance of older workers are reformed in a systemic way. Knowledge workers at age 50+ are now known to have many strengths and advantages based on their long careers, work experience and substantial knowledge base. Strategic thinking and comprehensive ability can compensate for the possible loss of speed and flexibility in cognition. Moreover, learning of senior workers can be seen as counterevidence against pervasive age stereotypes (Isopahkala-Bouret, 2015).

Contemporary Learning Theories: Emphasis on Social Processes

The research on learning has expanded and advanced significantly during the last two decades. The new research has changed the understanding of how learning occurs. For example, the concepts of metacognition and self-regulated learning have changed the landscape of learning. Self-regulated learners are generally characterised as active learners who efficiently manage their own learning experiences in many different ways. Self-regulated learners have a large arsenal of cognitive and metacognitive strategies that they readily deploy, when necessary, to accomplish learning tasks. Self-regulated learners also have adaptive learning goals and are persistent in their efforts to reach these goals (Boekaerts, Pintrich, & Zeidner, 2000; Zimmerman & Shunk, 2008). Self-regulated learners are motivated, independent and metacognitively active participants in their own learning (Pintrich, 2000; Pintrich & Ruohotie, 2000). Metacognition is generally assumed to consist of two broad components: (1) how aware learners are of their cognitive states and processes and (2) what kinds of abilities they have to control or modify these states (Pintrich, 2000). These skills are commonly set as key competences that enable learners to develop the capacity to manage their own learning in changing environments.

Most studies on self-regulated learning are implemented among young learners, either in school settings or in higher education. The common understanding is that adults regulate their learning more independently than children. However, we lack knowledge regarding how older adults, such as senior workers aged 50+, manage their learning at work. In ageing studies, self-regulatory processes have been investigated only among elderly people usually over the age of 70. The main result of such studies is that their self-regulation depends on their lifestyle earlier in life and opportunities to learn and use their agency throughout their life course (Gerstorf & Ram, 2009). Self-regulation also has strong connections with social structures and senior

workers' earlier experiences of acting in a self-regulative way (Scheie & Carstensen, 2009).

Ageing studies have been more focused on transitions in life, health and nutrition habits than cognitive tasks and learning at work. Some evidence can be found that mid-aged adults have better control of negative emotional states in problem-solving situations than younger adults. By summarising recent literature, we may conclude that self-regulation is a socially and culturally constructed quality (Blanchard-Fields, Stein, & Watson, 2004) through which learners can manage their learning and work performance. However, we have very little knowledge about senior workers' learning, particularly regarding how they regulate their learning in working life settings.

According to the contemporary theories, learning is a social process. Social perspective theories emphasise the role of social and cultural contexts in cognition (e.g. Cole, 1991; Cole & Cigagas, 2010; Reynolds, Sinatra, & Jetton, 1996; Säljö, 2010). Learning has increasingly been seen as embedded within a social context and framework. Social perspective theories have been variously referred to as social constructivism, sociocultural perspective, sociohistorical theory and socio-cultural-historical psychology. Although social perspective theorists' views are diverse, each theorist posits that learning occurs through the mediation of social interaction. Knowledge is not an individual possession but is socially shared and emerges from participation in social activities (Cole, 1991; Reynolds et al., 1996).

Rather than using the terms 'acquisition' and 'representation', social perspective theorists view knowledge as constructed by and distributed among individuals and groups as they interact with one another and with cultural artefacts, such as pictures, texts, discourse and gestures. There are a number of studies that emphasise that team work, collaboration and knowledge sharing are key features in successful organisations. The organisation is not merely an information-processing machine, but an entity that creates knowledge through action and interaction (Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995;). According to Nonaka and Toyama (2003), knowledge creation is a transcending process through which entities (individuals, groups, organisations etc.) transcend the boundaries of the old into a new self by acquiring new knowledge. In the process, new conceptual artefacts and structures for interaction are created, which provide possibilities as well as constrain the entities in consequent knowledge creation cycles.

Workers need social skills that enable them to collaborate and build relationships of trust both locally and globally with large groups of people in a variety of settings (Davies, Fidler & Gorbis, 2011). Learning also demands competences to engage in collaborative knowledge creation (e.g. Cole, 1991; Hakkarainen, 2013, Säljö, 2010). There are a number of studies which provide evidence that new ideas and creativity require an organisational culture that encourages employees to cross boundaries and share their knowledge. Ebrahimi, Saivas and Holford (2008) have studied competent senior workers in the knowledge management process of high-tech businesses. They found that there are tremendous differences in the discourse of learning and learning orientations between younger and

older workers. While both groups have important expertise, they found paradoxes growing from the recent organisational culture in companies. Senior workers' tacit knowledge and organisational memory could provide an important resource in companies, but not all companies seem to understand the resources senior workers could provide.

Senior workers distinguish themselves by having practical intelligence and the ability to solve ill-defined business problems using rules of thumb (tacit knowledge) that cannot be put down on paper (Coy, 2005). Older employees are also described as being committed to quality, possessing a strong work ethic and functioning as a corporation's memory (Inma & Drury, 2007). Other researchers describe them as being creative, responding well in a crisis and possessing well-developed communication skills and a sense of loyalty (Lamontet al., 2015). Based on these qualifications, senior workers seem to possess valuable knowledge, skills and attitudes which are necessary to make knowledge productive.

Research Methodology

This study is applying the techniques of qualitative research synthesis (Major & Savin-Baden, 2011; 2010; Savin-Baden & Major, 2013). This is a qualitative approach to present findings of qualitative data analysis across studies and then interpret them in relation to further themes that emerge across studies. The process of qualitative research synthesis can combine and integrate the results of several studies in an interpretative manner. The method is used here to make sense of themes and concepts that have recurred across individual qualitative studies conducted by graduate students Saksa (2012), Kärkkäinen (2012), Huotari (2013), Lax (2013), Laitinen (2015), Tökkeri (2015) and Kosonen (2015) at 'Senior Talent' research group, at Institute of Behavioural Sciences, University of Helsinki (See: Annex 1). The process of research synthesis followed several systematic steps as described in Figure 1.

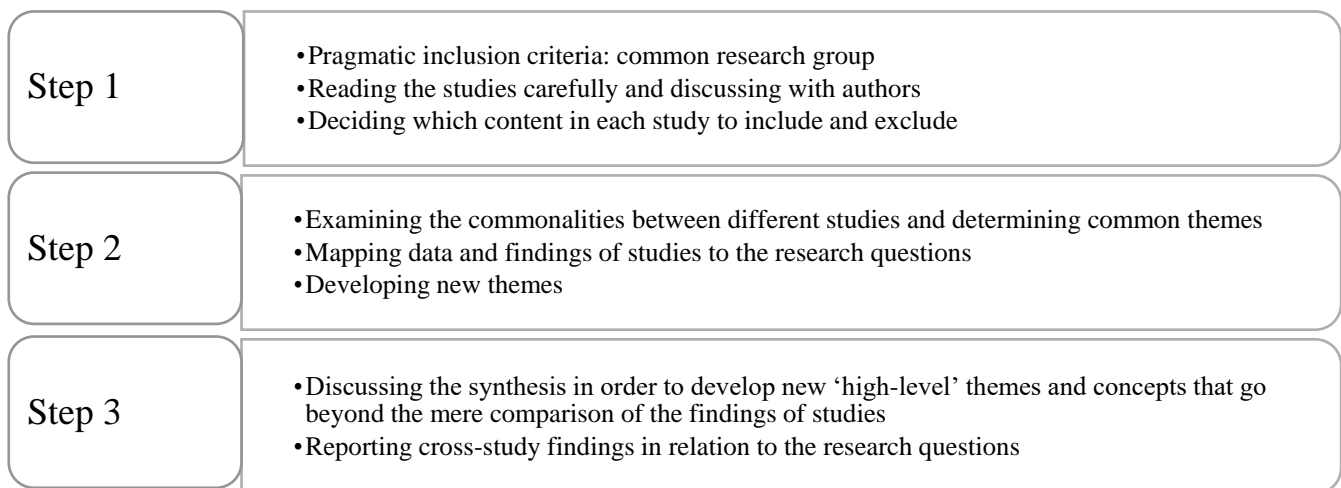


Figure 1. Steps of interpretative research synthesis

At step 1, the goal was to develop inclusion/exclusion criteria. This step was implemented in a pragmatic way. Each study conducted by the graduate students at the 'Senior Talent' research group between 2012 and 2015 were included if they focused on the learning experiences of senior knowledge workers (i.e., professionals with high level of cognitive demands at work) and the organisational circumstances where such learning took place. This first phase included careful reading of the original studies. The authors of the article were acting as supervisors and advisors in the research group and therefore they could also discuss the specific themes with the researchers. Seven studies out of eight were included. The study that was excluded focused on service clerks whose learning experiences and organisational circumstances differed from those of knowledge workers.

All the included studies shared an interest in researching learning of senior workers in knowledge-intensive professions. They all used interpretative, qualitative methods for data gathering and analysis. The primary data, in total, consisted of 82 interviews with professionals who worked, for example, in engineering, teaching, service design, accounting, management consultancy, journalism and publishing. All these professions are culturally and economically important professions in Finnish society and, thus, the studies represent quite an exclusive sample of senior workers. Each study defined its own unique research questions and theoretical concepts. The specific topics were somewhat different in each study and some sub-themes were not fitting to the scope of this study. Thus, there was a need to decide which content in each study to include and exclude (See Table 1).

Table 1:

Inclusion and exclusion criteria

CRITERIA	INCLUDED	EXCLUDED
SPECIFIC TOPICS	learning tacit knowledge expertise development shared expertise self-efficacy, work-efficacy age management	organisational performance change management technological change
COMMON QUESTIONS	How these studies inform understanding of senior knowledge workers' learning and the organisational conditions that encourage it?	Learning in formal education / continuing studies
DATA	Interviews with knowledge workers aged 50+ who were employed or self-employed, and managers (Tökkei 2015; n=11)	Interviews with younger knowledge workers or fully retired professionals

At step 2, the commonalities between different studies were examined. The specific themes of the original studies were compared and contrasted with each other. Parallel reading of individual case studies allowed researchers to see an integrated and more comprehensive picture. Rather than re-analysing the primary data (that is, the interviews) the analysis and descriptions of the original authors were used as data in this process. Different grids and mapping techniques were used to relate data examples and findings to

the research questions. What kinds of answers can be found for the research questions from each individual case study? What are the recurrent themes that can be found in most of the studies? What is the shared content? The process was iterative and interpretative; the aim was not to generalise and find averages, but rather to find analogies and common interpretations between cases. The process of developing common themes across studies at this second step is exemplified in Table 2.

Table 2.

Example of developing cross-study themes

THEMES	self-confidence	motivation	tacit knowledge	collaboration	etc.
Saksa (2012)	yes, in relation to self-efficacy beliefs	yes	no	yes, but only a minor theme	
Kärkkäinen (2012)	yes, able to resist negative stereotypes	yes, motivation theories included	yes, how to convert to explicit knowledge	yes, one of the main themes	
Huotari (2013)	No	yes	yes, the overall theme of the thesis	yes, focus on knowledge transfer	
Tökkei (2015)	No	yes, how to maintain motivation	no	yes, cross generational teams	
etc.					

At step 3, the common themes across the studies were explored in more depth. Further conceptual insight was drawn on the basis of the systematic comparison, integration and summarisation of the prior findings (Major & Savin-Baden, 2010; Savin-Baden & Major, 2013). At this phase of the analysis, singular themes were combined and renamed, and totally new upper-level categories were defined on the basis of the themes of the original studies (Savin-Baden & Major, 2013). The purpose was to develop 'main categories' that synthesise the issues across the original studies and across the initial cross-themes mapped at step 2. The main concepts related to the first research question (typical learning features) were: self-regulation, continuity, sharing

and networking. The main thematic categories related to the second research question (organisational conditions) were: collaboration, involvement and appreciation. These concepts go beyond the mere comparison of the findings of original studies. The research synthesis produced new interpretations of the phenomena (Major & Savin-Baden, 2010).

The Typical Features of Learning for Senior Knowledge Workers

Across the studies senior knowledge workers described their learning with a passion and internalised obligation. In a sense, they were resilient and persistent like 'crocodiles';

they had had a long career and were still fighting to gain new knowledge in order to survive in changing environments. In the qualitative research synthesis, three main features could be identified in the learning of senior knowledge workers: (1) Self-regulation, (2) Continuity, (3) Sharing and Networking. All these categories were very much interrelated.

Self-Regulation of Learning

One of the key cross-study issue appeared to be the strong self-regulation of learning. Studies stressed that senior knowledge workers managed their own learning independently. They did not wait for someone to provide them with new information, nor did they expect that the employer would invite them to take part in some further education courses. If they need to learn something new, they had an attitude of 'I'll do it!' They felt that doing so was their own responsibility. Moreover, in all studies learning was not thought of in terms of some specific courses or training: it was part of everyday life.

Self-regulation and management of own learning was conducted by listening to many different viewpoints, reading and seeking new knowledge. Prior experience was essential for self-regulation too. For example, Laitinen (2015) and Lax (2013) explained that many senior workers emphasised how they could use their earlier knowledge as a resource for learning new things. As the following excerpts illustrate, it was easier to learn and accommodate new knowledge and skills on the basis of the existing knowledge base:

You must try to find ways to activate and utilise your prior competence (in a new situation) and then, at the same time, you must keep learning new things. (...) It can be a burden and it can be frustrating, but still it is easier to accommodate new knowledge on the basis of the existing competence base. (anonymous; Laitinen, 2015).

You don't have to go through all the basic things. You have the basis already. You know the main practices and stuff and then you can continue learning on a more advanced level. (51-year-old male; Lax, 2013).

The notion of self-regulation encompassed not only know-how but also confidence on the capacity to learn new things despite of age. As Saksa (2012) explained senior knowledge workers were now more merciful towards their own learning. Their extensive work experiences gave a sense of relaxation. They had also learned to delegate (learning) tasks to others if they felt that they did not have the capacity to do the task.

Age has brought a degree of self-confidence that you don't have to be scared of handling many tasks. Work duties have a human size. I know that I'll be capable of managing them. (54-year-old female; Saksa, 2012).

Self-regulation required awareness of both the learning processes and the obstacles of learning. Moreover, the studies stressed that senior knowledge workers directed their learning toward something that opens up their minds and surprises them. They wanted to overcome barriers, learning something challenging and inspiring. They neither expected nor wanted someone to patronisingly guide or supervise them. On the other hand, Laitinen (2015) stated that independency was also problematic and challenging. Professional development should not be solely the workers' responsibility. Seniors occasionally engaged in too much self-criticism and had a pronounced sense of knowledge deficiency. Laitinen (2015) further stated that as workers age, they are more aware that their expertise will always be limited and relative.

Because senior knowledge workers' learning was very self-regulated, it was important that the external learning requirements, directed by the work organisation, went hand in hand with the personal need for growth. The congruence between the external requirements and their internal needs was important. It was harder to motivate seniors to learn things that made no sense to them; however, when they had a feeling that their work was meaningful, they were very enthusiastic about learning. Self-regulated learning was growing from one's own motivation and interest, personal needs and passion to develop.

Continuous learning as a self-evident part of work

Across studies it was emphasised that long experience enable senior knowledge workers to accumulate a lot of knowledge, to build important social relationships and to develop a broad view. In that sense, age was entirely a positive factor at work, especially because of the experience and tacit knowledge. Learning was still continuing, as the following excerpt from the study of Lax (2013) conveys:

Lifelong learning means that you accept that your knowledge becomes outdated and the world is changing; managing uncertainties requires that you have to read a lot if you want to achieve anything. Learning helps you to adapt in uncertain conditions. (68-year-old male; Lax, 2013).

An interesting finding was that continuous learning was emphasised especially in the change processes of an organisation. As changes occurred, senior workers saw that their obligation was to take learning 'into their own hands'. Across studies, they stressed that autonomy in their work and their own development was significant. Senior knowledge workers organised their work in such a way that they really had an opportunity to continue achieving new competence. Continuous learning and self-regulation were intertwined. Studies acknowledged that age and long work experience alone are not sufficient nowadays for senior workers to be considered experts. Everybody is challenged to learn new things as the work environment changes. In Laitinen (2015) some senior workers felt that their work and job duties had changed so much that they were again beginners despite

their age. Nevertheless, Kärkkäinen (2012) explain that the renewal was mostly positively experienced.

Those (changes) have made me feel like a sensible person, they have kept me active. (...) Now, I don't have time (to retire). Here (in the new job) everything is just getting started again and things are even better than before. It has meant a lot, A LOT for me. (65-year-old male; Kärkkäinen, 2012).

Across studies senior workers described situations when continuing learning would need more time. Working organisations often have a fast pace and no one has time to introduce new processes and tools. In Lax (2013) one interviewee noted, 'Along with your age you can no longer work or study 24 h in a day and every day of the week. You must also rest some' (64-year-old female; Lax, 2013). Laitinen (2015) further stressed that it would be difficult if senior workers were expected to learn new things on their own time since there was no time to develop new skills and competences during working hours. Leisure was needed for recovery and relaxation, and for gathering new energy for work.

Networking and sharing expertise and tacit knowledge

Notions of sharing and networking captured the third key feature of senior knowledge workers' learning. Across the studies, senior workers did not consider their expertise merely as an individualistic characteristic, but instead stressed their obligations to the larger work community. They have learned to understand the 'big picture' and how different work tasks relate to other tasks. They also valued collaboration very much. For example, Huotari (2013) stated that it was not enough to manage own work; seniors must also understand others' work. In Saksa (2012) senior workers described how they benefitted from their colleagues' expertise:

At this phase of my work career, learning from my colleagues is maybe the best way to learn ... I really often meet my colleagues and we go through matters and share knowledge. (60-year-old female; Saksa, 2012).

The studies strongly emphasised the mutual benefit of solving problems and learning new things together. Collaboration with colleagues helped them to figure out the most essential points to learn. Joint discussions and reflections with others was a way to internalise new knowledge and reinforced new practices. It was noticeable that sharing tacit knowledge played a very important role in senior workers' commitments in working communities. According to Huotari (2013) tacit knowledge helped seniors to understand phenomena in a holistic way and it was always connected with experience.

Networking was very integrated with collaboration and sharing. Networking was one of the most efficient way of developing work and regenerating learning in the workplace. In the study of Lax (2013) networking was viewed from the

wider perspective of a community of expertise. It could be seen particularly in those working places that had units in different geographical locations. Further, even though networking was common and typical in many organisations, senior workers emphasised that it required skills to share and receive ideas in temporary, add-hoc networks. One interviewee in Lax (2013) observed as follows:

All these (professional) events where you go are attended by all those people who are experts in the same domain as you or who want to learn more about the domain. I consider all these people as my colleagues. We have good conversations together. We might possibly engage in some group work together and all these kinds of activities. And that's the way to learn very much and very well! (63-year-old female; Lax, 2013).

An interesting finding was also that some senior knowledge workers described that a long career has developed their expertise in a way that it had become their personal property. It was no longer the possession of their organisation. Their own expertise, including the continuous development of such expertise, could be even more important than being responsive to your organisation's needs. Sometimes this was interpreted such that a senior expert was not motivated to fully engage in their everyday work. Instead, they used their expertise in high-skill networks outside of the immediate work organization.

The Organisational Conditions in Which Senior Knowledge Workers Can Continue Learning

In this study, the second research question focused on organisational conditions that enable and support participation and learning at the end of one's professional career. As a result of the research synthesis, three main categories were defined: (1) involvement in changes; (2) multi-aged collaboration and (3) appreciation of organisational management.

Senior knowledge workers are involved in and influence organisational changes

Active participation in all kinds of organisational activities, including organisational changes, was an essential condition to support learning of senior knowledge workers. It was important to not displace senior workers or make them remain passive targets of change processes. Furthermore, as shown by Kärkkäinen (2012) senior knowledge workers were actively initiating career change: 'I actually demand some sort of change every four years or so, like if I start feeling in a rut and work is too much of just a routine'. (51-year-old female, Kärkkäinen, 2012).

The study by Saksa (2012) showed that seniors resisted all kinds of special treatment based on their age. Whether it was a question of transferring to a new job, taking new work responsibilities or moving to a new office, senior workers wanted to be treated like all the other workers. Being identified as belonging to a special group of 'older workers'

could be taken as a sign of age discrimination, even though the organisational management had positive intentions. In Saksa (2012) one interviewee noted as follows:

A year ago, everyone in here had to change their offices (...), but my boss said: 'You have a kind of "age protection"'. And I said, 'What does that mean?' It was like, 'You're at that age that you don't have to move your office anymore' (...) I said 'That's ageism!' and I pressed that I need to move to another office (like everyone else). (62-year-old male; Saksa, 2012).

Being allowed to change job/job duties and to learn new things was important for a sense of professional agency. One could feel that the organisation is still trusting that he/she is fully 'in' and a fully contributing member of the work community. Across studies, there was evidence that those senior knowledge workers who kept learning at work had meaningful work responsibilities and a high level of autonomy in defining their professional (learning) objectives. Contrary to the common stereotype, senior knowledge workers were not necessarily more change-resistant than their younger colleagues, particularly if they could be fully involved and influence the direction of changes. Indeed, if organisational changes were well managed, it was often the case that adaptation to changes was easier for senior workers. Senior workers knew what to expect because they had experienced transitions and re-organisations before. Prior experience gave rise to confidence in the middle of confusing and uncertain change processes.

Junior and senior workers have fertile cross-generational collaboration

As mentioned earlier, knowledge sharing and networking were very important features of learning for senior knowledge workers. Across studies, those seniors who reported high levels of motivation and energy for learning despite their age were actively participating in cross-generational teams and networks. Their work organisations had hired people of all ages and facilitated collaboration between junior and senior workers. In all studies, encounters with younger colleagues were experienced as opportunities for learning something new. As one interviewee in Tökkei (2015) said, 'It's amazingly fruitful if we can make such a heterogeneous group of people working well together!' (anonymous; Tökkei, 2015).

In the organisations in which the cross-generational collaboration worked very well, senior knowledge workers were considered as advisors and mentors. In some organisations, there were special mentoring and 'senior advisor' programmes implemented for the purpose of knowledge transfer. In general, as Kärkkäinen (2012) explained, senior knowledge workers saw their role as helping younger colleagues to develop a more holistic understanding of things at work. They hoped that the younger colleagues had a humble and open attitude towards learning from a more experienced colleague. They

appreciated their junior colleagues' enthusiasm and willingness to figure out how new things work. They considered the younger knowledge workers very technically competent and very talented social networkers.

Senior workers had benefited a lot from other's tacit knowledge as well. This was clearly shown in Huotari (2013) as one interviewee admitted that: I've almost always worked with colleagues who are older than me. (...) I've gotten a lot from my supervisors and older colleagues. (anonymous; Huotari, 2013). Seniors are able to recall situations when they had been young professionals and had benefitted from the experience of senior colleagues. Further, Kärkkäinen (2012) demonstrated that there had also been some negative incidents when some older colleagues had not helped the younger ones. As the following excerpts from her study suggest, such experiences made the seniors decide that they would try to help younger colleagues whenever they can:

I've promised to myself that I will always help younger colleagues when I can. And the more I share and try to help, the more I get too, and the more successful I will be as well. (51-year-old female; Kärkkäinen, 2012).

As the retirement age approached, senior knowledge workers' efforts shifted from advancing one's own expertise and career to developing the work organisation. Their focus shifted towards knowledge transfer. Thus, supporting and enhancing senior workers' efficacy, learning and development is important from the senior workers' own point of view; moreover, it is essential for the development of the whole work community.

Management appreciates senior knowledge workers

Work organisations have a significant impact on how senior knowledge workers feel about their own age and learning: Is the long work experience valued or does ageing hinder the value of senior workers' competence? Do senior knowledge workers feel that it is worth participating in (external) training or do they feel obliged to give priority to younger colleagues' learning? In general, the studies concluded that the attitudes towards senior workers had recently become more positive.

The organisational management had a leading role to play in supporting senior workers' involvement and learning the prevention of age discrimination; according to the studies, leaders and supervisors were showing a good example for the whole work community. As Saksa (2012) illustrated, it was important that managers openly stated that they wanted senior workers to stay at work as long as they wanted. As the following excerpt from her study suggests, whenever senior knowledge workers had special attention and appreciation from the management, they were motivated to contribute even more for the benefit of the work community: *'The following types of requests come quite often from upstairs, from the management board and elsewhere (from the management): 'Can you comment on this?' or 'What is your opinion on this?' (51-year-old female, Saksa, 2012).*

Moreover, even though the learning of senior knowledge workers was highly self-regulated, supervisors' support and feedback was important. Across studies, it was emphasised that supervisors' encouragement was important especially during times when there were some changes and seniors needed to move ahead and take on new challenges in their career. In some cases, the supervisor had asked a person to attend some courses; however, most of the time, senior knowledge workers were actively seeking out the training they needed and the supervisor's task was simply to agree and provide the resources to participate. Seniors were allowed to participate in all kinds of courses, but it required one's own will and activity.

It was also clearly stated that knowledge transfer cannot be the only 'senior strategy' in the organisation. It was considered age discrimination if senior workers were asked only to provide introduction and teach younger colleagues, but not to use their own know-how and learn new things themselves. Especially Laitinen (2012) argued that senior knowledge workers did not want to be abused and left on the side. It was not fair if management only expected them to give away their knowledge and did not consider them competent enough to use that knowledge; furthermore, younger colleagues would use the same knowledge in their jobs and would take over all the expert tasks. Laitinen (2012) further speculates that maybe some supervisors considered senior workers to be too knowledgeable and powerful, as one interviewee in her study noted: *'Supervisors can even be scared of a more experienced colleague, because (s)he knows more than him/her.'* (anonymous; Laitinen 2015).

Discussion

This qualitative research synthesis mapped learning experiences of workers aged 50+ in knowledge-intensive professions. Based on the synthesis, it can be concluded that three common features define senior knowledge workers' learning: self-regulation of learning, continuity of learning, and sharing and networking as a necessary condition for learning. Across studies, it was clear that senior workers had a strong sense of agency in their learning. They managed their learning using various resources, including their own prior knowledge and their colleagues' expertise. They set aims for their learning and were very confident that they would be able to develop new competences. These all are key features of self-regulated learning. Furthermore, continuity of learning and cooperation with colleagues boosted their energy and helped in further learning. Moreover, this synthesis showed that senior knowledge workers who reported high levels of participation in workplace learning were active contributors in their organisations in many other ways as well.

The synthesis focused on favourable learning experiences and exemplified what senior knowledge workers are able to achieve in age-friendly organizational

settings. However, a social advantage accrues to well-educated, professional knowledge workers, which needs to be taken into consideration when interpreting these findings. In the studies that were synthesized here, the learning experiences at older age were strongly influenced by educational background, prior work history and continuous learning at work, the high level of cognitive demands in knowledge-intensive work, and the degree of freedom and autonomy provided for professional workers. Therefore, the findings of this study cannot be generalised to consider those senior workers who have different background and work circumstances.

The workplace provides an arena in which ageing is interpreted within the context of an economic agenda, and 'old age' can be a marker of a worker who is at risk of not being productive anymore (Isopahkala-Bouret, 2015). However, as demonstrated here, chronological age alone does not determine how the work organisation treats senior workers and how much senior knowledge workers are willing to invest in learning in the workplace. Both formal and informal organisational practices define how senior workers are supposed to engage with learning at work because of their age. The themes and issues emphasized here could serve as 'best practice' examples from which work organizations with less age-friendly culture could learn and benefit.

Based upon the findings from the synthesis, six key implications have been identified for building more age-friendly and learning-orientated organisational conditions: Organisational management should state clearly that they appreciate and support senior workers; The professional experience should be recognised and rewarded in the work organisation; Senior knowledge workers should participate in organizational changes and have influence on outcomes; Senior workers should be included in multi-aged work communities in which they could both share their experience with junior colleagues and learn from a younger generation of workers; Work organisation should offer enough freedom and autonomy for senior knowledge workers, and trust on their self-regulatory capacities; Work objectives should make sense to senior workers. If the challenges are set on the right level, they could remain actively working and learning.

To conclude, through the process of ageing, the meaningfulness of work and workplace learning becomes more significant as it has both potential for confrontation with age stereotypes and feeling of competence and self-worth. Learning that makes sense will increase the well-being and work satisfaction of senior knowledge workers. As the retirement age is approaching, senior workers can choose whether they want to continue working and learning or not. This research synthesis has mapped and further interpreted the issues that will influence the decision. Moreover, this knowledge can guide decision-makers and practitioners in ways of developing advanced senior (learning) policies at work.

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Annex 1

The list of unpublished Master's theses which were included in this study:

1. Katja Saksa (2012) "Työnantajat ei pahemmin puutu elämääni": työelämän senioreiden kokemuksia johtamisesta työssä oppimisen ja ikääntymisen näkökulmista tarkasteltuna [Senior workers' experiences on organisational management from the perspectives of learning and ageing]. University of Helsinki.
2. Merja Kärkkäinen (2012) Ei tieto jakamalla vähene vaan se lisääntyy: seniorit, yhdessä oppiminen ja työelämän muutokset [Seniors, shared learning and changes at working life]. University of Helsinki
3. Sinikka Huotari (2013) "Ikä on etu": ikääntyvien ja ikääntyneiden työntekijöiden kokemuksia työssä oppimisesta ja hiljaisesta tiedosta työyhteisössä [Senior workers' experiences on learning at work and tacit knowledge]. University of Helsinki
4. Tarja Lax (2013) "Aika on... tehdä työtä tai opiskella" : senioriyrittäjien kokemuksia kehittämisestä työssään [Senior entrepreneurs' experiences on learning and development at work]. University of Helsinki
5. Kiti Laitinen (2015): "Kyl me niinku yhdessä tää tehdään" - Jaettu asiantuntijuus ja ikääntyminen ["We do this together" - Shared Expertise and Ageing]. University of Helsinki.
6. Sini Tökkeri (2015) Transformaalinen johtajuus ikäjohtamisen ytimessä [Transformative leadership in the heart of age management]. University of Helsinki
7. Pirjo Kosonen (2015) Ikääntyvien työpystyvyys -niin kauan kun mä oon mukana, mä haluan olla mukana [Work efficacy of senior personnel]. University of Helsinki